Alexithymia and health-related quality of life in patients with dizziness

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Abstract: Background: Alexithymia is a personality trait characterized by deficits in regulating, experiencing and verbalizing emotions and has been assumed to be associated with a tendency to express emotional arousal through somatization. Although such a tendency is often observed in patients with dizziness, the exact relationship of alexithymia to dizziness is not yet known. The aim of this study was to examine alexithymic characteristics in patients with dizziness and its relation to health-related quality of life (HRQoL). Sampling and Methods: We assessed 208 patients from an interdisciplinary center for vertigo and balance disorders for characteristics of alexithymia (20-item Toronto Alexithymia Scale), HRQoL (Short-Form 12 Health Survey, SF-12), dizziness (Dizziness Handicap Inventory), depression and anxiety (Hospital Anxiety and Depression Scale). Hierarchical regression analyses were used to evaluate the relationship between alexithymia, dizziness and HRQoL. Results: We found that difficulties in identifying and describing feelings, two important factors of alexithymia, were significantly related to more severe symptoms of dizziness. More pronounced alexithymic characteristics were associated with lower HRQoL, especially in the mental dimension of the SF-12. The results remained significant after controlling for possibly confounding variables such as socioeconomic status and depression. Conclusions: These findings contribute to a better understanding of affect regulation in patients with dizziness, which is important for the development of psychotherapeutic interventions suitable for alexithymic patients with dizziness.

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Alexithymia and Health-Related Quality of Life in Patients with Dizziness

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Key Words
Alexithymia · Dizziness · Health-related quality of life · Somatization

Abstract
Background: Alexithymia is a personality trait characterized by deficits in regulating, experiencing and verbalizing emotions and has been assumed to be associated with a tendency to express emotional arousal through somatization. Although such a tendency is often observed in patients with dizziness, the exact relationship of alexithymia to dizziness is not yet known. The aim of this study was to examine alexithymic characteristics in patients with dizziness and its relation to health-related quality of life (HRQoL). ***Sampling and Methods:*** We assessed 208 patients from an interdisciplinary center for vertigo and balance disorders for characteristics of alexithymia (20-item Toronto Alexithymia Scale), HRQoL (Short-Form 12 Health Survey, SF-12), dizziness (Dizziness Handicap Inventory), depression and anxiety (Hospital Anxiety and Depression Scale). Hierarchical regression analyses were used to evaluate the relationship between alexithymia, dizziness and HRQoL. ***Results:*** We found that difficulties in identifying and describing feelings, two important factors of alexithymia, were significantly related to more severe symptoms of dizziness. More pronounced alexithymic characteristics were associated with lower HRQoL, especially in the mental dimension of the SF-12. The results remained significant after controlling for possibly confounding variables such as socioeconomic status and depression. ***Conclusions:*** These findings contribute to a better understanding of affect regulation in patients with dizziness, which is important for the development of psychotherapeutic interventions suitable for alexithymic patients with dizziness.

Introduction

Alexithymia is a personality trait characterized by deficits in regulating, experiencing and verbalizing emotions [1–3]. Typical features of alexithymia are difficulties in identifying and describing feelings, a decreased ability to differentiate between emotional states and physical sensations, limited imaginative activity, poorer fantasy and an externally oriented cognitive style with a lack of symbolic thought [1, 4–6]. These difficulties are believed to cause an inability to regulate emotions and to be important factors in the maintenance and possible etiology of physical and mental health problems [3, 6–10]. Alex-

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ithymic individuals are assumed to focus on somatic sensations that accompany emotional arousal, which leads to somatosensory amplification and misinterpretation of somatic sensations as signs of physical illness (i.e. somatization or dizziness) [11]. Furthermore, alexithymic individuals are not only prone to develop psychosomatic disturbances, but also tend to perceive a poorer health-related quality of life (HRQoL). The association between alexithymia and HRQoL has been well examined in the general population and alexithymia is presumed to be a predisposing factor for poorer HRQoL [10]. Alexithymia has also been found to be negatively associated with life satisfaction in primary-care patients after controlling for depression and other confounding variables [12]. However, there are few studies on this issue in clinical populations. In patients with chronic pain, alexithymia appeared to play a significant role for low HRQoL [13]: a significant negative correlation was observed between HRQoL and alexithymia, assessed with the 20-Item Toronto Alexithymia Scale (TAS-20). The TAS-20 subscale 'Difficulty Describing Feelings' was a significant predictor of the psychological domain of HRQoL, even after controlling for depression, somatization and gender. Similarly, alexithymic characteristics played a role in predicting the HRQoL in patients with inflammatory bowel disease [14].

Another group of diseases which is associated to poor HRQoL comprises dizziness-related disorders [15]. Dizziness is a common and disabling symptom in primary-care practice [16] with a negative impact on HRQoL [15]. As one of the most challenging symptoms in medicine, it is difficult to define and diagnose, impossible to measure directly and a challenge to treat [17]. The reported general lifetime prevalence of severe dizziness in the German population is 29.3% (95% CI 27.8–30.9) [18]. Various disease entities may cause dizziness; thus, the reported frequency of specific diagnoses varies widely, depending on the setting, age and individual investigator [17]. Dizziness as a syndrome has central-vestibular, peripheral-vestibular, internal and psychological facets [19]. About 30% of patients with peripheral vestibular dizziness and 70% with vestibular migraine develop a secondary somatoform dizziness syndrome [20]. Often, it is not easy to make a clear distinction between psychological and physical causation. If somatic disturbances are found, the discomfort may only partially be explained by these findings, and dizziness is often caused or influenced by psychological aspects. Previous studies reported a high comorbidity of dizziness, anxiety disorders and depression [16, 21, 22], and 30% of complex dizziness syndromes that are insufficiently explained medically are regarded as having a somatoform nature [20]. Therefore, it is important to develop an explanatory model that includes somatic as well as psychological factors. One of these psychological factors could be alexithymia, which has been reported to be associated with a tendency to express emotional arousal through somatic symptoms. However, to our knowledge, there are no studies on alexithymia in patients with dizziness.

This study examined alexithymia in a large sample of patients with dizziness and evaluated the possible association between HRQoL and alexithymia. In view of the previous findings described above, it was hypothesized that (1) alexithymic characteristics are significantly related to dizziness symptoms, and (2) higher alexithymia scores show a significant association to a reduced HRQoL, especially in the mental dimension of HRQoL.

Methods

Participants

The study was authorized by the ethics committee of the canton of Zurich. All participants gave their written informed consent.

From August 2009 to April 2010, all patients aged between 18 and 65 years who were referred to the Interdisciplinary Centre for Vertigo and Balance Disorders of the University Hospital Zurich were asked to participate in the study. They received questionnaires together with their appointment date by mail, which were returned at the clinical examination. If data or consent were missing, patients were asked to complete the data and submit consent to participate. Patients were excluded if questionnaires were incomplete (more than two missing items) or if no written consent was obtained (fig. 1).

Measures

The TAS-20 (German version) was used to assess alexithymia [23, 24]. The TAS-20 is a reliable and valid self-rating measure of the alexithymia construct. Empirically validated, this instrument contains the following factors: factor 1 (difficulty identifying feelings, DIF), factor 2 (difficulty describing feelings, DDF) and factor 3 (externally oriented thinking, EOT). The TAS-20 is the most widely used measure of alexithymia and the generalizability of its 3-factor structure was demonstrated across languages and cultures, including the German version [25]. The international threshold criterion for alexithymia (TAS-20 $\geq$61) was not used in our study as this criterion may not be representative for all populations, e.g. the German population [26].

The Short-Form 12 Health Survey (SF-12) was used to rate HRQoL [27, 28]. It is a shortened version of the SF-36 [29] and measures health in eight dimensions (level of physical function, physical role function, physical pain, general experience of health, vitality, social functioning, emotional role function and psychological well-being). Physical and mental health composite scores were computed using the scores of the 12 questions. SF-12 dem-

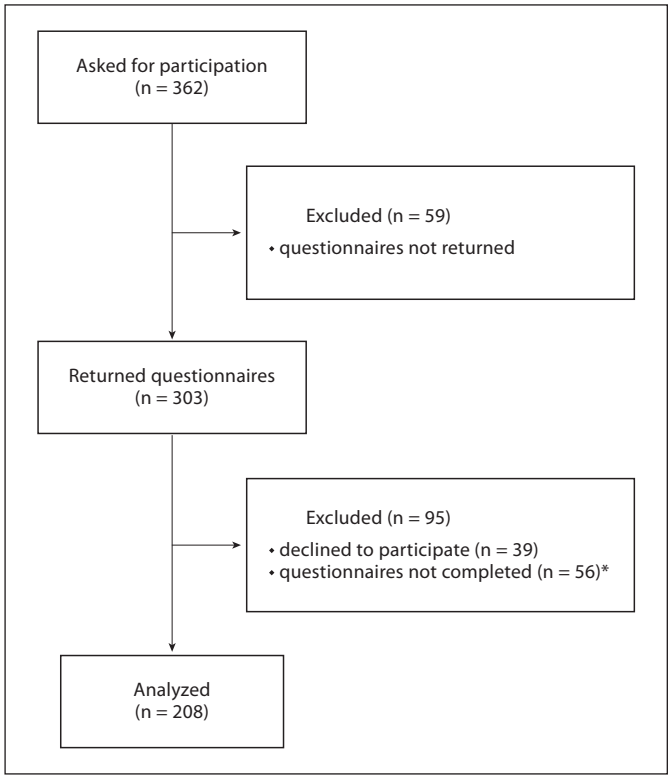

Fig. 1. Flowchart of the recruitment and retention of participants in the trial. * TAS-20 or major parts of the other questionnaires not completed (more than 2 items missing).

onstrated good factorial validity in a sample of somatic disease [27], and relative validity estimated for the mental sum score ranged from 0.60 to 1.07 (median = 0.97) in relation to the 36-item scale [28]. The SF-12 reaches 80% of the precision of the well-established SF-36, which shows satisfactory reliability (Cronbach's alpha = 0.70), highly satisfactory factorial validity and satisfactory discriminant validity [29].

The Hospital Anxiety and Depression Scale (HADS, German version) assesses anxiety and depression [30, 31] and consists of 14 items. Each item is rated with 0–3 points. On two subscales with 7 items each, the degree of anxiety and depression is measured on a scale from 0 to 21. Scores from 8–10 indicate a possible, and scores >10 a probable depression or anxiety disorder [32]. Although the latent structure of the HADS is unclear, the scale has been shown to be an effective measure of emotional distress [33]. An acceptable test-retest reliability for patients with vestibular disorder has been reported [34].

The Dizziness Handicap Inventory (DHI, German version) is a disease-specific self-rating questionnaire for the severity of dizziness [35, 36]. The DHI consists of 25 items and is divided into 3 subscales (9-item functional subscale, 7-item physical subscale and 9-item emotional subscale). It indicates the patient's self-perceived level of handicap associated with their dizziness on a total score (range 0–100) on a 3-step scale (yes = 4 points, sometimes = 2 points and no = 0 points). The German version of the DHI demonstrated good reliability (test-retest reliability r = 0.92–0.97) and internal consistency (α = 0.72–0.89) and is thus recommended as a measure of disability in patients with dizziness [36, 37].

Table 1. Demographic and clinical characteristics of 208 patients with dizziness

Age, years	45.2 ± 11.8
Duration of dizziness, weeks	188.5 ± 277.5
Frequency of dizziness, times/week	5.3 ± 2.2
HADS	
Depression	5.4 ± 4.1
Anxiety	6.8 ± 6.8
SF-12	
MCS	45.6 ± 10.9
PCS	40.3 ± 10.9
DHI	
Total sum score	42.3 ± 23.5
Physical scale	13.0 ± 7.5
Emotional scale	13.1 ± 8.4
Functional scale	16.2 ± 10.5
SES (min = 0, max = 5)	3.2 ± 1.3
Gender, female/male	97/111 (46.6/53.4)
Characteristics of dizziness[a]	
Acute	56 (26.9)
Chronic	145 (69.7)
Permanent	48 (23.1)
Attacks	119 (57.2)
Educational level	
No secondary school graduation	10 (4.8)
Secondary school graduation	121 (58.2)
High school diploma	70 (33.7)
Occupation	
Unskilled worker	14 (6.7)
Skilled worker	124 (59.6)
University degree	55 (26.4)
Employment status	
Currently employed	145 (69.7)
Unemployed	57 (27.4)

Results are presented as means ± SD or numbers with percentages in parentheses.
[a] Multiple responses.

Clinical and sociodemographic characteristics were assessed by a questionnaire that was developed in the Interdisciplinary Centre for Vertigo and Balance Disorders for clinical use (table 1). In this questionnaire, the variables 'education' (primary/secondary/high school diploma), 'occupation' (unskilled worker/skilled worker/university degree) and the current employment status (currently employed/unemployed) were assessed. To determine the socioeconomic status (SES), each of the variables was rated: 0 points each for the lowest items (no secondary school graduation/unskilled worker/unemployed), 1 point each for the intermediate items (secondary school graduation/skilled worker/currently employed) and 2 points each for the highest items (high school diploma/university degree). Out of these values, a sum score was calculated, which ranged from a minimum of 0 points ('very low') to 5 points ('very high').

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Table 2. TAS-20 scores for 208 patients with dizziness

	Total mean ± SD	Women mean ± SD	Men mean ± SD	t test		
				t	d.f.	p
TAS-20 total score	42.1 ± 11.3	40.1 ± 11.3	43.8 ± 11.0	–2.38	206	0.018
Factor 1: 'DIF'	13.5 ± 5.8	12.4 ± 5.5	14.4 ± 6.0	–2.45	206	0.015
Factor 2: 'DDF'	10.2 ± 3.8	9.4 ± 3.9	10.9 ± 3.6	–2.91	206	0.004
Factor 3: 'EOT'	18.4 ± 4.4	18.3 ± 4.7	18.6 ± 4.2	–0.47	205	0.638

Table 3. Bivariate correlations between the TAS-20, SF-12 and DHI for 208 patients with dizziness

	SF-12 MCS	SF-12 PCS	DHI total	DHI phys.	DHI emot.	DHI funct.	TAS-20 total score	DIF	DDF
TAS-20 total score	–0.46[c]	–0.17	0.30[c]	0.18	0.38[c]	0.25[b]			
DIF	–0.51[c]	–0.20[a]	0.29[c]	0.14	0.40[c]	0.23[a]	0.86[c]		
DDF	–0.42[c]	–0.18	0.29[c]	0.19	0.33[c]	0.26[b]	0.84[c]	0.67[c]	
EOT	–0.12	–0.01	0.13	0.09	0.17	0.09	0.68[c]	0.30[c]	0.39[c]

DHI emot. = DHI emotional scale; DHI funct. = DHI functional scale; DHI phys. = DHI physical scale; DHI total = DHI total sum score.

[a] $p < 0.05$; [b] $p < 0.01$; [c] $p < 0.001$ Pearson correlations (Bonferroni-corrected p values for correlations between TAS-20 and SF-12 as well as DHI).

Statistics

To assess gender differences, the χ^2 test was used for nominal variables and the Student t test for continuous variables. The Pearson correlations were calculated to evaluate possible associations between the TAS-20, SF-12, DHI and other variables. To avoid accumulation of the α-error, Bonferroni adjustments were performed to evaluate 16 correlations between the TAS-20 and the DHI as well as the 8 correlations between the TAS-20 and the SF-12 [38].

Hierarchical regression analyses were carried out to test the influence of the TAS-20 and its subfactors on the HRQoL. The two SF-12 subscales mental health component summary score (MCS) and physical component summary score (PCS) served as dependent variables. Because of the previously reported association of alexithymia with depression, gender and SES, these variables were entered simultaneously in step 1 of the regression equation. As we found no bivariate association between age and the TAS-20 in our sample, 'age' was not included. In a second step, the TAS-20 total score and the three subfactors DDF, DIF and EOT, respectively, were included in the analysis.

In the regression analyses, tolerance of all predictors was ≥0.46, indicating low multicollinearity [39]. Furthermore, it was tested if the residuals showed a normal distribution. All regression residuals were normally distributed (Kolmogorov-Smirnov-test, $p > 0.25$).

The Statistical Package for Social Sciences (SPSS; Version 19.0) was used for all calculations.

Results

Clinical and Demographic Characteristics

Of the 362 patients who were asked to participate, 208 (58%) gave their written informed consent, completed the questionnaires (fig. 1) and were included in the study. The mean age was 45.2 years, 97 of the patients (47%) were women (table 1). Women showed a significantly longer duration of dizziness than men ($t = 2.12$, d.f. = 148, $p = 0.04$). The SES of men was higher (mean 3.3, SD 1.26) than that of women (mean 2.9, SD 1.22; $t = 2.36$, d.f. = 200, $p = 0.02$).

The mean TAS-20 total score was 42.1 (table 2). We found no significant correlations between the TAS-20 and age, neither for the total score nor for the subfactor scores. The TAS-20 total score correlated significantly with the HADS depression score ($r = 0.56$, $p < 0.001$).

Relationship between Alexithymia and Dizziness

We found significant positive correlations between the TAS-20 total score and the DHI total score ($r = 0.30$, $p < 0.001$) as well as the emotional and functional scale scores (table 3). Regarding the TAS-20 subfactors, there were

Table 4. Regression analysis for HRQoL as a dependent variable and gender, depression, socioeconomic status and alexithymia as predictive variables

	SF-12 MCS					SF-12 PCS				
	adjusted R^2	ΔR^2	p[b]	β[c]	p[d]	adjusted R^2	ΔR^2	p[b]	β[c]	p[d]
Step 1[a]	0.48	0.49	<0.001			0.18	0.19	<0.001		
Step 2	0.49	0.01	0.04			0.19	0.01	0.14		
Gender				0.05	0.33				0.10	0.15
HADS D				–0.66	<0.001				–0.45	<0.001
SES				–0.09	0.10				0.11	0.10
TAS-20 total				–0.13	0.04				0.12	0.14
Step 1[a]	0.48	0.48	<0.001			0.18	0.19	<0.001		
Step 2	0.50	0.03	0.02			0.18	0.01	0.37		
Gender				0.06	0.28				0.10	0.14
HADS D				–0.62	<0.001				–0.43	<0.001
SES				–0.09	0.12				0.12	0.10
DIF				–0.17	0.02				0.02	0.88
DDF				–0.05	0.46				0.03	0.79
EOT				0.07	0.20				0.11	0.13

HADS D = HADS depression score.
[a] Variables: gender, HADS D and SES; [b] significance level of ΔR^2; [c] standardized coefficient; [d] significance level of coefficients.

significant positive correlations between factor 1 (DIF) and factor 2 (DDF) with the DHI total score as well as the emotional and functional scale scores, whereas factor 3 (EOT) did not correlate with the DHI total and subscale scores (table 3).

Alexithymia and HRQoL

Significantly lower values in the MCS (45.6) and PCS (40.3) were obtained in our sample compared to the German general population in the questionnaire's manual (MCS 52.2, $p < 0.001$; PCS 49.0, $p < 0.001$) and a mixed population of patients with chronic disease (MCS 51.2, $p < 0.001$; PCS 46.3, $p < 0.001$) [29].

In the bivariate correlational analysis, the TAS-20 total sum score and the subfactors DIF and DDF were negatively correlated with both the MCS of the SF-12 and – to a lesser extent – with the PCS (table 3).

In the hierarchical regression analyses, the TAS-20 total score added significantly to the variance of the MCS explained by the 3 control variables, i.e. gender, SES and depression score. Entering the TAS-20 subfactors to the regression analysis after the control variables resulted in a significant increase of variance explanation, primarily attributable to the DIF. HADS depression score was also a significant predictor of the MCS (table 4).

In the hierarchical regression analyses regarding the PCS, neither the TAS-20 total score nor the TAS-20 subfactors explained significantly more variance than the control variables. HADS depression was a significant predictor of the PCS (table 4).

Discussion

To the best of our knowledge, this is the first study on alexithymic characteristics in patients with dizziness. As a main result, we found that difficulties in identifying and describing feelings, two important facets of alexithymia, were significantly related to more severe dizziness. We also found that more pronounced alexithymic characteristics were related to a lower HRQoL, especially in the mental dimension of the SF-12. Both results were in accordance with our study hypotheses.

When interpreting these findings, a number of study limitations should be taken into consideration. First, the data were collected via questionnaires, this despite the fact that alexithymic patients may have difficulty in accurately rating their deficits. According to Taylor et al. [3], clinicians should use the TAS-20 as a screening device for alexithymia and evaluate the significance of an indi-

vidual patient's score in the context of information derived from other sources including clinical observations, reports from close friends or relatives of the patient and results from other personality tests [3]. In future studies, the Toronto Structured Interview for Alexithymia [40], with its prompts and probes to elicit further information and to appraise and judge such deficits, may help to overcome such specific problems in self-report measurements for assessing alexithymia. The original version and the German version of this structured interview demonstrate adequate item characteristics, a significant correlation with the TAS-20, and adequate interrater, internal and retest reliability [40, 41]. Second, we cannot exclude a selection bias as all patients were recruited from a specialized dizziness unit, and 95 patients declined to give written consent or failed to complete the questionnaires. As we found relatively low mean values of the TAS-20 in our sample (comparable to healthy controls and relatives of patients with obsessive-compulsive disorder [42]), patients with more pronounced alexithymic characteristics may have had more difficulty filling in the TAS-20 and/or may have more often declined to participate. Third, due to the cross-sectional design of our study, we cannot determine causality. There is a need for prospective longitudinal studies for a better characterization of the possible impact of alexithymia on dizziness and HRQoL.

However, despite these limitations, our study does suggest that there is a significant link between alexithymia and dizziness. It is well known that an underlying organic cause is not found in approximately 30% of dizziness syndromes and that they are often psychosomatic in nature or related to a psychiatric disorder [20]. The results of our study are in accordance with the view that individuals with difficulties in identifying and describing feelings may be prone to experience psychological distress in the form of somatic symptoms rather than as emotions, e.g. medically unexplained somatic symptoms or psychosomatic diseases [11]. In earlier studies, difficulties in identifying and/or describing feelings have been particularly associated with somatization independently of somatic diseases, somatoform disorders [43–45], depression, anxiety [46] as well as the increased utilization of health care [47]. Furthermore, high scores in difficulties in identifying feelings emerged as an important predictor for somatization, as measured by the SCL-90-R [44]. The association between the characteristics of alexithymia and the HRQoL is consistent with results of previous studies on the relationship between alexithymia and the HRQoL in the general population [10], in primary care [12] as well as in patients with chronic pain [13], inflammatory bowel disease [14], ulcerative colitis and Crohn's disease [48], coronary heart disease [49] or breast cancer [50], all of which determined a negative correlation between HRQoL and alexithymia independent of sociodemographic and psychopathological factors like depression.

Our findings of a significant relationship between alexithymia, HRQoL and dizziness suggest that assessing alexithymia in patients with dizziness at the onset of therapy may be helpful for individualized therapy planning. Some previous studies have reported that alexithymic patients are less responsive to psychotherapy than nonalexithymic patients [2]. Suitable psychotherapeutic intervention approaches for patients with dizziness as well as their difficulties in identifying and describing their feelings have been discussed in the literature [51]. Specific cognitive-behavioral therapy for chronic dizziness includes an integrative explanation model for dizziness with medical and psychological factors [52]. Interoceptive exposure to dizziness symptoms is a core element of cognitive-behavioral therapy CBT in patients with dizziness, as well as relaxation techniques, physical exercise and physiotherapy [53–55]. However, in patients with high levels of alexithymia, the aims of psychotherapy should also include improvements in the awareness of feelings, thoughts and fantasies to facilitate the regulation of emotional arousal. Furthermore, an improved ability to regulate their emotions may help patients with dizziness to cope effectively with stressful events in their daily life [56]. Thus, it may be possible for alexithymic patients with dizziness to reduce their dizziness symptoms and to improve their HRQoL.

References

1 Sifneos PE: The prevalence of 'alexithymic' characteristics in psychosomatic patients. Psychother Psychosom 1973;22:255–262.
2 Grabe HJ, Rufer M, Freyberger HJ: Alexithymie: Eine Störung der Affektregulation. Konzepte, Klinik und Therapie. Klinische Praxis. Bern, Huber, 2009.
3 Taylor GJ, Bagby RM, Parker JDA: Disorders of affect regulation. Alexithymia in medical and psychiatric illness. Cambridge, Cambridge University Press, 1997.
4 Taylor GJ, Bagby RM, Parker JD: The alexithymia construct. A potential paradigm for psychosomatic medicine. Psychosomatics 1991;32:153–164.
5 Taylor GJ: Recent developments in alexithymia theory and research. Can J Psychiatry 2000;45:134–142.
6 Taylor GJ, Bagby RM: New trends in alexithymia research. Psychother Psychosom 2004;73:68–77.

7 Rufer M, Hand I, Braatz A, et al: A prospective study of alexithymia in obsessive-compulsive patients treated with multimodal cognitive-behavioral therapy. Psychother Psychosom 2004;73:101–106.
8 Rufer M, Ziegler A, Alsleben H, et al: A prospective long-term follow-up study of alexithymia in obsessive-compulsive disorder. Compr Psychiatry 2006;47:394–398.
9 Bankier B, Aigner M, Bach M: Alexithymia in DSM-IV disorder: Comparative evaluation of somatoform disorder, panic disorder, obsessive-compulsive disorder, and depression. Psychosomatics 2001;42:235–240.
10 Mattila AK, Saarni SI, Salminen JK, et al: Alexithymia and health-related quality of life in a general population. Psychosomatics 2009;50:59–68.
11 Lundh L, Simonsson-Sarnecki M: Alexithymia, emotion, and somatic complaints. J Pers 2001;69:483–510.
12 Mattila AK, Poutanen O, Koivisto A, et al: Alexithymia and life satisfaction in primary healthcare patients. Psychosomatics 2007; 48:523–529.
13 Garcia Nuñez D, Rufer M, Leenen K, et al: Lebensqualität und alexithyme Merkmale bei Patienten mit somatoformer Schmerzstörung. Der Schmerz 2010;24:62–68.
14 Verissimo R, Mota-Cardoso R, Taylor G: Relationships between alexithymia, emotional control, and quality of life in patients with inflammatory bowel disease. Psychother Psychosom 1998;67:75–80.
15 ten Voorde M, van der Zaag-Loonen H, van Leeuwen R: Dizziness impairs health-related quality of life. Qual Life Res 2012;6:961–966.
16 Sullivan M, Clark MR, Katon WJ, et al: Psychiatric and otologic diagnoses in patients complaining of dizziness. Arch Intern Med 1993;153:1479–1484
17 Sloane PD, Coeytaux RR, Beck RS, et al: Dizziness: state of the science. Ann Intern Med 2001;134:823–832.
18 Neuhauser HK: Epidemiologie von Schwindelerkrankungen. Der Nervenarzt 2009;80: 887–894.
19 Hegemann S, Rufer M, Straumann D: Schwindel und Gleichgewichtsstörungen als interdisziplinäre Herausforderung. Neurology.ch 2006;3:2–4.
20 Eckhardt-Henn A, Tschan R, Best C, et al: Somatoforme Schwindelsyndrome. Der Nervenarzt 2009;80:909–917.
21 Eagger S, Luxon LM, Davies RA, et al: Psychiatric morbidity in patients with peripheral vestibular disorder: a clinical and neuro-otological study. J Neurol Neurosurg Psychiatry 1992;55:383–387.
22 Sklare DA, Konrad HR, Maser JD, et al: Special issue on the interface of balance disorders and anxiety: an introduction and overview. The interface of balance disorders and anxiety. J Anxiety Disord 2001;15:1–7.
23 Bach M, Bach D, de Zwaan M, et al: Validierung der deutschen Version der 20-Item Toronto-Alexithymie-Skala bei Normalpersonen und psychiatrischen Patienten. Psychother Psych Med 1996;46:23–28.
24 Bagby RM, Parker JDA, Taylor GJ: The twenty-item Toronto Alexithymia scale-I. Item selection and cross-validation of the factor structure. J Psychosom Res 1994;38: 23–32.
25 Taylor GJ, Bagby RM, Parker JDA: The 20-Item Toronto Alexithymia Scale: IV. Reliability and factorial validity in different languages and cultures. J Psychosom Res 2003; 55:277–283.
26 Franz M, Popp K, Schaefer R, et al: Alexithymia in the German general population. Soc Psychiatry Psychiatric Epidemiol 2008; 43:54–62.
27 Maurischat C, Ehlebracht-König I, Kühn A, et al: Factorial validity and norm data comparison of the Short Form 12 in patients with inflammatory-rheumatic disease. Rheumatol Intern 2006;26:614–621
28 Ware JE, JR, Kosinski M, Keller SD: A 12-Item short-form health survey: construction of scales and preliminary tests of reliability and validity. Med Care 1996;34:220–233.
29 Bullinger M: Erfassung der gesundheitsbezogenen Lebensqualität mit dem SF-36-Health Survey. Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz 2000;43:190–197.
30 Herrmann C: International experiences with the Hospital Anxiety and Depression Scale-A review of validation data and clinical results. J Psychosom Res 1997;42:17–41.
31 Herrmann C, Buss U: Vorstellung und Validierung einer deutschen Version der 'Hospital Anxiety and Depression Scale' (HAD-Skala): ein Fragebogen zur Erfassung des psychischen Befindens bei Patienten mit körperlichen Beschwerden. Diagnostica 1994;40:143–154.
32 Zigmond AS, Snaith RP: The Hospital Anxiety and Depression Scale. Acta Psychiatrica Scand 1983;67:361–370.
33 Cosco TD, Doyle F, Ward M, et al: Latent structure of the Hospital Anxiety and Depression Scale: a 10-year systematic review. J Psychosom Res 2012;72:180–184.
34 Kammerlind A, Bergquist-Larsson P, Ledin T, et al: Reliability of clinical balance tests and subjective ratings in dizziness and disequilibrium. Adv Physiother 2005;7:96–107.
35 Jacobson GP, Newman CW: The development of the Dizziness Handicap Inventory. Arch Otolaryngol Head Neck Surg 1990;116: 424–427.
36 Kurre A, van Gool CJAW, Bastiaenen CHG, et al: Translation, cross-cultural adaptation and reliability of the German version of the Dizziness Handicap Inventory. Otol Neurotol 2009;30:359–367.
37 Enloe LJ, Shields RK: Evaluation of health-related quality of life in individuals with vestibular disease using disease-specific and general outcome measures. Phys Ther 1997; 77:890–903.
38 Bortz J: Statistik für Sozialwissenschaftler. Heidelberg, Springer, 1993.
39 O'Brien R: A caution regarding rules of thumb for variance inflation factors. Qual Quant 2007;41:673–690.
40 Bagby RM, Taylor GJ, Parker JDA, et al: The development of the Toronto Structured Interview for Alexithymia: item selection, factor structure, reliability and concurrent validity. Psychother Psychosom 2006;75:25–39.
41 Grabe HJ, Löbel S, Dittrich D, et al: The German version of the Toronto Structured Interview for Alexithymia: factor structure, reliability, and concurrent validity in a psychiatric patient sample. Compr Psychiatry 2009;50:424–430.
42 Grabe HJ, Ruhrmann S, Ettelt S, et al: Alexithymia in obsessive-compulsive disorder: results from a family study. Psychother Psychosom 2006;75:312–318.
43 Waller E, Scheidt CE: Somatoform disorders as disorders of affect regulation: a development perspective. Int Rev Psychiatry 2006; 18:13–24.
44 Grabe HJ, Spitzer C, Freyberger HJ: Alexithymia and personality in relation to dimensions of psychopathology. Am J Psychiatry 2004;161:1299–1301.
45 Kooiman CG, Bolk JH, Brand R, et al: Is alexithymia a risk factor for unexplained physical symptoms in general medical outpatients? Psychosom Med 2000;62:768–778.
46 Mattila AK, Kronholm E, Jula A, et al: Alexithymia and somatization in general population. Psychosom Med 2008;70:716–722.
47 Lumley MA, Norman S: Alexithymia and health care utilization. Psychosom Med 1996;58:197–202.
48 Moreno-Jiménez B, López Blanco B, Rodríguez-Muñoz A, et al: The influence of personality factors on health-related quality of life of patients with inflammatory bowel disease. J Psychosom Res 2007;62:39–46.
49 Valkamo M, Hintikka J, Honkalampi K, et al: Alexithymia in patients with coronary heart disease. J Psychosom Res 2001;50:125–130.
50 Grassi L, Rossi E, Sabato S, et al: Diagnostic criteria for psychosomatic research and psychosocial variables in breast cancer patients. Psychosomatics 2004;45:483–491.
51 Rufer M, Jenewein J: Alexithymie und Psychotherapie. Psychodynamische Psychotherapie 2009;8:34–45.
52 Langs G: Behavioural-oriented medical aspects of vertigo. Psychoneurology 2004;317–321.
53 Schaaf H: Verhaltenstherapeutische Ansätze bei Schwindelerkrankungen. Psychomed 1998;10:18–21.
54 Schaaf H: Psychotherapie bei Schwindelerkrankungen, ed 3. Kröning, Asanger, 2011.
55 Asmundson GJG, Larsen DK, Stein MB: Panic disorder and vestibular disturbance: an overview of empirical findings and clinical implications. Panic disorder in general medicine. J Psychosom Res 1998;44:107–120.
56 Majohr K, Leenen K, Grabe HJ, et al: Alexithymia and its relationship to dissociation in patients with panic disorder. J Nerv Ment Dis 2011;199:773–777.